

ACE RC®



COUGAR

2.4GHz 3CH DIGITAL RADIO SYSTEM PS3

2.4GHz 3CH Digital Radio System



No.8307



Please read all instructions thoroughly before operating this device.

The contents are subject to change without prior notice due to product improvements and specification changes.

INSTRUCTION MANUAL

WARRANTY

Thunder Tiger Corporation guarantees this model kit to be free from defects in both material and workmanship. The total monetary value under warranty will in no case exceed the cost of the original kit purchased. This warranty does not cover any components damaged by use or modification. Part or parts missing from this kit must be reported within 60 days of purchase. No part or parts will be sent under warranty without proof of purchase. To receive part or parts under warranty, the service center must receive a proof of purchase and/or the defective part or parts. Should you find a defective or missing part, contact the authorized Thunder Tiger Service/Distributor nearest you. Under no circumstances can a dealer or distributor accept return of a kit if assembly has started.

INTRODUCTION

Congratulations on your purchase of an ACE RC Cougar PS3 2.4GHz digital radio system. The Cougar PS3 radio system was specially designed with the latest wireless and advanced-programming technology to meet driver's requirements. With spread spectrum and smart frequency-hopping system, the Cougar PS3 radio system delivers precision and smoothness of operation at the same time without any interference risks. Cougar PS3 pistol radios are configured for operating surface R/C models.

The Cougar PS3 equipped with the Steering/Throttle trims, Steering/Throttle servo reversing, Throttle/Brake ATV, Steering dual-rate adjustment, and lots of extra adjusting functions with all of the new bells and whistles.

With proper use and care, ACE RC Cougar PS3 will make the control advanced and simple, and provide you with many years of enjoyment. Before operating your new radio system or installing into your model, please take a few minutes to familiarize with the various features of the system by reading this owner's manual thoroughly.

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ADVANCED TECHNICAL FEATURES

IBDC -Interactive Bi-Direction Communication

Uses standard transceiver chips for interactive bi-direction communication between Tx/Rx.

FHSS -Frequency hopping spread spectrum

Advanced frequency-hopping program on the spread spectrum base for added safety, reliability and virtually interference-free communication.

SIBL-Security ID binding link

A binding feature is included in the ACE RC 2.4 GHz spread spectrum system to ensure the transmitter and receiver only bind to each other and prevent interferences from other controllers.

FSPC-Failsafe programmable individual channel

In extremely rare circumstances where signal loss is encountered, the system features a failsafe program allowing individual channel to restore back to initial settings.

FEATURES

TRANSMITTER

- Advanced 2.4GHz frequency-hopping spread spectrum technology
- Steering/Throttle trims
- Steering/Throttle servo reversing
- Throttle/Brake ATV—Adjustable Travel Volume
- Steering dual-rate adjustment
- LED battery voltage indicator
- Adjustable steering wheel tension
- Low battery alarm
- Folding antenna

RECEIVER

The TRS401ss is the 2.4GHz 4CH receiver paired with the COUGAR PS3 transmitter. Its compact and small size allows you to install it almost anywhere on your model.

SYSTEM CONTENTS

Item	COUGAR PS3 Radio System
Item No	8307
Transmitter	COUGAR PS3
Receiver	TRS401ss
Servos	N/A
Accessory	Switch hardness x 1, Receiver Battery holder x 1



SPECIFICATIONS

Transmitter	COUGAR PS3
Item No.	8307
Configuration	Pistol Grip
Encoder	3Ch
Frequency(MHz)	2.4GHz
Modulation	GFSK(PPM)
Current Drain	130mA@9.6V
Frequency Band Width	2402~2479MHz
Transmission System	FHSS
Band No.	78CH
ID No.	13bit
Radio Speed	16Kbps
Servo Reverse	CH1~CH3
Display	LED
Mode Memory	None
Antenna Type	1/4 λ Dipole Sleeve
Antenna Peak Gain	2dBi Typical
Power Requirement	9.6V/8 cell AA Battery

Receiver	TRS401SS
Item No	AQ2280
Frequency(MHz)	2.4GHz
Channel	4CH
BEC	No
Modulation	PPM
Type	Single Antenna
Battery Power	4.8~6V



- | | | |
|--|---|-------------------------------|
| ① Transmitter Antenna | ⑥ Throttle Trim | ⑪ Steering Wheel |
| ② Battery Level Indicator | ⑦ Steering D/R (Dual Rates) | ⑫ Power Switch |
| ③ HI/LO Throttle ATV
(Adjustable Travel Volume) | ⑧ AUX Ch Button | ⑬ Throttle Trigger |
| ④ Servo reversing switches | ⑨ External Charging Jack | ⑭ Steering Tension Adjustment |
| ⑤ Steering Trim | ⑩ 2.4GHz TX RF Module
and binding SW | ⑮ Battery Cover |

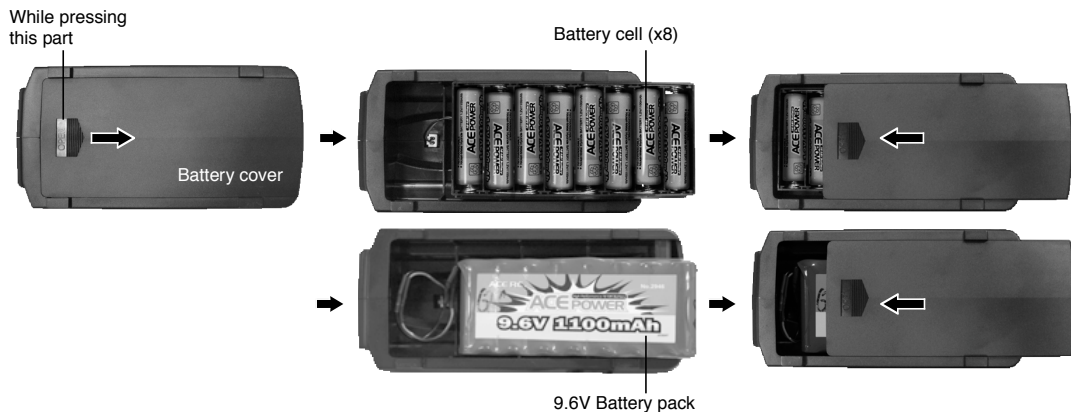
TRANSMITTER CONTROLS

1. **Transmitter Antenna:** Straighten up the antenna before operating the model.
2. **Battery Level Indicator:** Three LEDs indicate the battery voltage level. If the Red LED flashes, please replace the batteries.
3. **HI/LO Throttle ATV (Adjustable Travel Volume):** Provides the function to let you independently preset the maximum travel of the throttle servo either side (high / low) of neutral.
4. **Servo reversing switches:** To reverse the servo's rotation direction at the flip of the switch. The reversing switches are recessed into the transmitter to prevent accidental operation.
5. **Steering Trim:** Adjusts the steering in small increments or decrements to run the model straight.
6. **Throttle Trim:** Adjusts the throttle in small increments or decrements to shift the neutral position.
7. **Steering D/R (Dual Rates):** Push this lever left or right to adjust the amount of the steering dual rate. Right to increase dual rate amount and left to decrease the amount.
8. **AUX Ch Button:** Provides an extra function for the control of the model.
9. **External Charging Jack:** For rechargeable NiCd/NiHM battery pack on the transmitter only.
10. **2.4GHz TX Module and binding SW:** The Binding SW button is located on the 2.4GHz TX module unit. For additional details, please refer to the "Binding" setting procedure (Page 7).
11. **Steering Wheel:** Controls the steering of the model.
12. **Power Switch:** Sliding to turn the transmitter on or off.
13. **Throttle Trigger:** pulled or pushed to control the movement of the model.
14. **Steering Tension Adjustment:** Use a Phillip type screwdriver to tighten or loosen the tension of the steering wheel.
15. **Battery Cover:** Slide cover to install or remove batteries.

INSTALLATION

Transmitter batteries replacement/installation

- 1) Slide the battery cover in the direction as shown to remove the cover.
- 2) Install 8pcs alkaline or rechargeable "AA" size cells into the battery holder connected to the transmitter.
- 3) Slide on the battery cover and make sure it is closed securely.
- 4) Turn the power on to check. If the Power Indicator LED fails to light, check the batteries for insufficient contact or incorrect battery polarity.



CHECK:

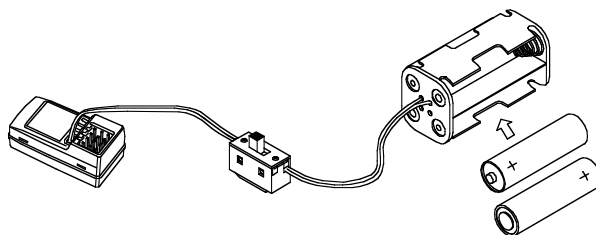
- a) Use only fresh, alkaline cells, all of the same brand.
- b) Make certain that the contacts in the battery holder stay clean by using a pencil eraser to gently remove any corrosion or dirt that may accumulate on them. It is recommended to do this each time you install fresh cells into your transmitter.
- c) If using the rechargeable 9.6V battery pack, simply remove the battery holder by pulling out the connector from the transmitter. Then plug-in the battery pack connector to the transmitter.
- d) When the rechargeable battery is installed in the transmitter, it can be charged through the external charging jack located on the transmitter.

⚠ CAUTION:

- a) Do not attempt to charge alkaline batteries, they may explode!!
- b) When charging the rechargeable battery, set the power switch on "OFF" position before charging. The charger plug must be correct type ("+" inside and "-" outside, type TAMIYA N-3U or equivalent). The wrong type may burst causing personal injury and damage.
- c) Always be sure the batteries are loaded in the correct polarity order. If the batteries are loaded incorrectly, the transmitter may be damaged.
- d) When the transmitter is not used for any short or long period of time, always remove the batteries from the transmitter.

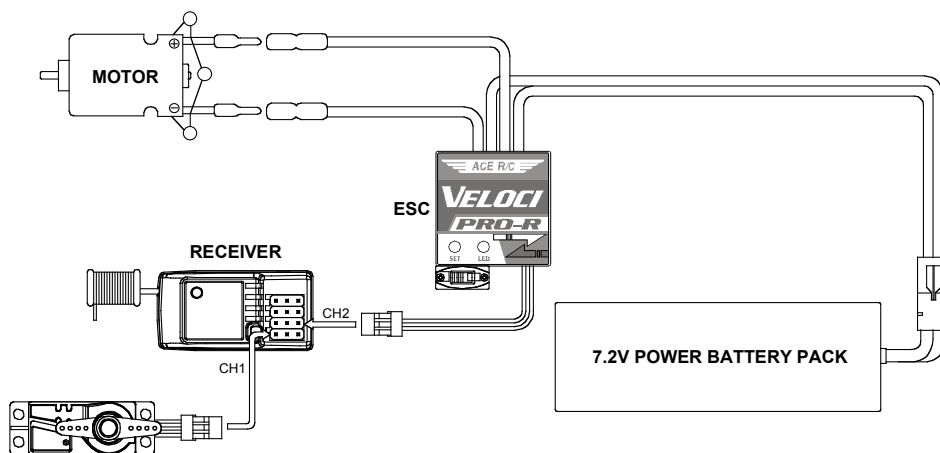
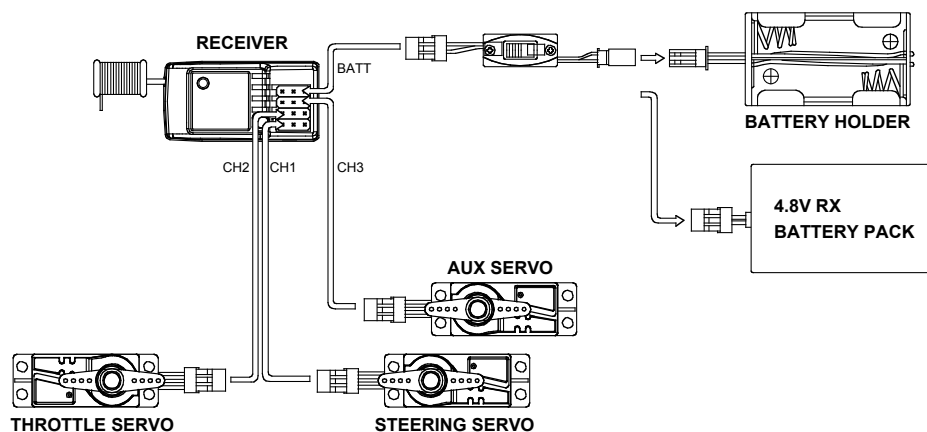
Receiver battery replacement/installation

Insert 4 fresh AA cells into the receiver battery holder. Make sure the batteries are located in the correct polarity order. Maintain the battery contacts in the same way as described in previous section. Insert the switch harness plug into the receiver socket marked "BATT".

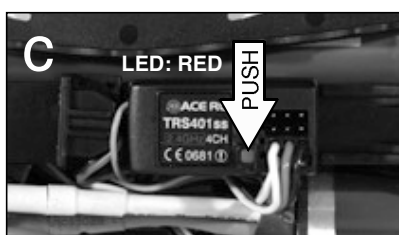


Radio installation

- 1) Connect the receiver, servos, and switch hardness/battery pack as shown.
- 2) If you are not familiar with all the control system. Do the "bench test" before to install all the devices on the model.
- 3) Always follow the **"transmitter on first, off last"** procedure.
- 4) Always install the receiver as far as possible from the motor, ESC, power battery, motor wires.. or other noise source.
Especially, do not route the motor wire next to the receiver, crystal or receiver antenna.

Electric Power Model Installation**Gas Power Model Installation**

BINDING PROCESS



A binding feature is included in the ACE RC Cougar 2.4GHz spread spectrum system to ensure the transmitter and receiver bind properly and prevent interference from other controllers.

To manually bind Tx/Rx, please proceed as per the following steps:

- a. Press and hold the "Binding SW" button on the back side of the transmitter while turning on the transmitter.
- b. Release the "Binding SW" button after the green LED flashes indicating the transmitter is binding.
- c. Press and hold the bind button on the receiver while turning on the receiver. Binding process will then start automatically.
- d. Successful binding is confirmed by LED changing from a quick blinking and then remain solid on the transmitter. The LED will turn green on the receiver. Once binding is complete, the system will automatically connect.

NOTE: Binding process may take 3~10 seconds to execute. If binding fails, the LED on the receiver will turn red. Please turn off the power and repeat the steps from a) ~d).

How to Set the Fail Safe (F/S) Position

How to Set the Fail Safe (F/S) Position

1. After binding the transmitter and receiver, you can set up the F/S position.
2. Turn on the receiver power and then press the "Binding SW" button on the receiver.
3. Move and hold the throttle trigger to the F/S servo position where you want to set (Caution: Always set the throttle trigger to the neutral or full brake position incase of any unexpected control error!).
4. When the LED blinks GREEN*, release the "Binding SW" button.
5. The LED turns to solid RED* and then back to solid GREEN* 2 seconds later. The F/S set up has now been activated.
6. To check the fail safe is working properly, move the throttle trigger to the full forward (full brake), hold it on this position and then turn off the transmitter. The F/S function should move the throttle servo to its fail safe position.
7. If the F/S set up fail, try the steps from 1) ~6) again. After the F/S is completed, you can just start your operation.

FUNCTIONS

1. Servo Reversing

It is sometimes necessary or convenient to reverse the output direction of the servo. The direction of the rotation for each individual servo can be changed by simply flipping the reversing switch that corresponds to the channel number on the receiver where the servo is plugged in. Under normal circumstances, Ch1 is steering, Ch2 is throttle, and Ch3 is for extra function. Using the reversing switches as needed.



2. Steering Trim

- **Neutral position trim**

By turning the Steering Trim knob clockwise or counter-clockwise, the steering neutral can be adjusted as needed.



NOTE

Be sure the steering trim on the transmitter is at the neutral position before you are trying to make an adjustment.

HELPFUL HINT

When you install a servo, always check to be sure the servo is at its neutral position.

- **Servo travel**

Changing the trim can affect the overall settings. When adjustments are made with this trim, it is recommended to re-check your installation for maximum servo travel.

HELPFUL HINT

If it takes most of your trim movement to get a servo to the neutral position, re-position the servo horn or servo saver on the servo and inspect your linkage installation.

FUNCTIONS

3. Throttle Trim

- **Neutral position trim**

Once the neutral position of the throttle trigger is set, by turning the Throttle Trim knob clockwise or counter-clockwise, the throttle neutral can be adjusted as needed.



HELPFUL HINT

When using an ESC, set the throttle trim to neutral and make adjustments to the speed control. On a gas powered model, set the trim to neutral and adjust the throttle linkage to the point where the carburetor is fully closed in accordance with your engine instruction manual.

- **Servo travel**

Trim adjustments will affect the overall servo travel; check the brake side (backward) movement when changes are made.

HELPFUL HINT

If you have used most of the trim movement to get the servo to the neutral position, re-center the servo horn closer to the neutral position and inspect your throttle linkage.

4. Throttle ATV

Throttle Adjustable Travel Volume/ATV provides the function to preset independently throttle travel of the servo either side of neutral. It offers easier adjustments to set the throttle operation at idle and maximum power.



5. Steering D/R

Steering D/R allows you to change the steering travel while running by turning the dual rate dial as shown to correct over-steering and under-steering problems by increasing or decreasing steering sensitivity. You can adjust sensitivity of your model to your own preferences with this function.



FCC RULES AND REGULATIONS

You are responsible for the proper operation of your station (transmitter) at all times and are responsible for observations, servicing, and maintenance as often as may be necessary to ensure proper operation. Each internal repair and each internal adjustment to an FCC type accepted R/C transmitter must be made in accordance with the technical regulations specified by the FCC. The internal adjustments should be performed by, or under the immediate supervision and responsibility of, a person certified as technically qualified to perform transmitter maintenance and repair duties in the private land mobile services and fixed services by an organization or committee representative of users in those services.

The FCC at this time does not require the modeler to obtain a special license for the operation of this unit. However, it is still the owner's responsibility to observe all FCC rules & regulations governing its use. For a copy of these rules write to: Federal Communications Commission Washington, DC 20554

FCC Caution: To assure continued compliance, any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment. (Example - use only shielded interface cables when connecting to computer or peripheral devices)

USING CAUTION AT THE RACING TRACK

- Do not operate the model or use the radio in rain, lightning, or at night.
- Do not operate the model or use the radio if you have been drinking alcohol or under the influence of any other substance that will affect your skills.
- Always check battery power before you operate.
- Keep out of reach of children.
- Do not store the radio in temperatures below -10 °C(14°F) or above 40°5fC (104°F) or in a humid, dusty, or high vibration environment. Keep the radio away from direct sunlight.
- To prevent corrosion, take out the batteries if you are going to store the radio for a long period.

ACCESSORIES

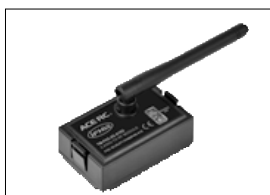
■ TX & RX



No.8307
ACE RC COUGAR 2.4GHz
3CH Radio System, PS3



AQ2280
ACE RC 2.4GHz 4CH RX,
TRS401SS



AQ2255
ACE RC 2.4GHz TX RF
MODULE, Futaba

ACCESSORIES

■ TX/RX Charger & Ni-MH Battery

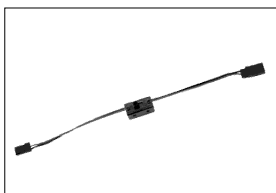


AT2139 100V2P/110mA
AT2139-J 110V2P/110mA
AT2140 230V2P/110mA
AT2141 230V3P/110mA

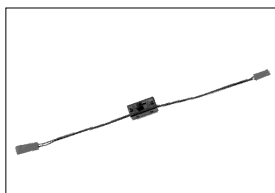


2970 Ni-MH Conversion Kit,
120V2P (AA x 12)
2970-J Ni-MH Conversion Kit,
100V2P (AA x 12)
2971 Ni-MH Conversion Kit,
230V2P (AA x 12)
2972 Ni-MH Conversion Kit,
230V3P (AA x 12)

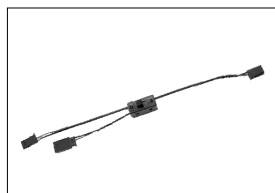
■ Switch Harness



AG2051
Switch Harness, Futaba &
JR



AG2060
Switch Harness, BEC/JST



AG2078
Y Switch Harness, Futaba

■ Ni-MH Battery



2927
Ni-MH Battery 2/3A,
4.8V/1.2Ah (4) For RX



2932
Ni-MH Battery 2/3A,
6V/1.2Ah (2+3) For RX



2938
Ni-MH Battery 2/3A,
6V/1.2Ah (4+1) For RX



2939
Ni-MH Battery 2/3A,
4.8V/1.2Ah (2+2) For RX



2946
Ni-MH Battery AA,
9.6V/1.1Ah(8) For TX



2969-J/S
Ni-MH Battery AA,
4.8V/1.1Ah (4) For RX

ACCESSORIES

■ Analog Servos



8114
Standard Servo
3.8Kg/6V,S1903



8117
Micro Servo
2.0Kg/6V,C1016



8118
Metal High Torque Servo
9.8Kg/6V,S2008MG



8120
Metal High Torque Servo
8.6Kg/6V,S1807MG



8121
Metal Gear Standard Servo
3.8Kg/6V,S1903MG



8139
Metal Gear Micro Servo
2.0Kg/6V,C1016MG



8150
7.4V High Voltage Servo
3.9Kg/7.4V,SHV1504



8151
Metal 7.4V High Voltage
Servo 3.9Kg/7.4V,
SHV1504MG

■ Digital Servos



8126
Digital Speed Servos
12.5Kg/6V,DS1213



8127
Digital Torque Servos
14.5Kg/6V,DS1015



8128
Digital Speed Servos
12.5Kg/6V,DS1313



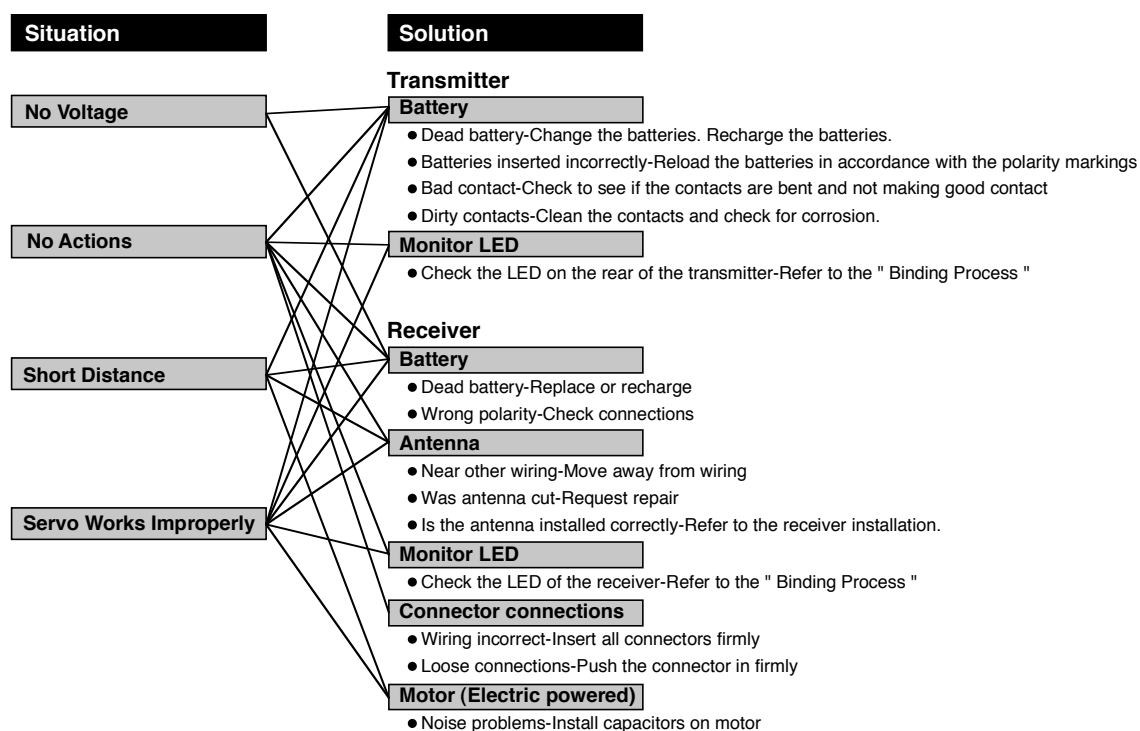
8130
Digital Standard Servos
5.4Kg/6V,DS0606

SERVICE

Thank you for purchasing of the ACE RC COUGAR Radio. Thunder Tiger strives to bring you the highest level of quality and service we can provide. We race and test our products around the world to bring you state-of-the-art items. Thunder Tiger guarantees that you should enjoy many hours of trouble free use from our R/C products. Thunder Tiger products have been sold worldwide through the authorized distributors that are supported directly and rapidly from Thunder Tiger. You may find that Thunder Tiger is always pursuing to explore new items creatively with highest quality. To update the latest product information and to get the best technical support, please feel free to contact your local hobby shops or Thunder Tiger authorized distributor.

TROUBLE SHOOTING

Do not try to operate your model if you find your radio is not working properly. Check out the radio as following steps. If you can not solve the problems then contact with the Thunder Tiger authorized distributor for service.



Manufactured by

THUNDER TIGER CORP.

<http://www.thundertiger.com>

JCxxx